**Search strategy**

**Pubmed**

(((exercise OR train OR endurance OR resistance OR physical exercise OR physical activity OR aerobics exercise OR anaerobic exercise) AND (‘vitamin D’ OR ‘vitamin D2’ OR ‘vitamin D3’ OR ’25 hydroxyvitamin D’ OR ‘cholecalciferol’ OR ‘ergocalciferol’ OR ‘calcitriol’ OR ‘calcidiol’ OR ‘calcifediol’ OR ‘calciferol’ OR ‘dihydroxycholecalciferol’ OR ‘eldecalcitol’ OR ‘hydroxycalciferol’ OR ‘hydroxycolecalciferol’ OR ‘ alphacalcidol’)) AND (muscle strength’ OR ‘hand strength’ OR ‘handgrip’ OR ‘mobility’ OR ‘muscle function’ OR ‘physical performance)) AND (aged OR elderly)) AND (‘intervention’ OR ‘controlled trial’ OR ‘randomized’ OR ‘randomised’ OR ‘random’ OR ‘randomly’ OR ‘placebo’)

**Web of science**

**#1** TS=(exercise OR train OR endurance OR resistance OR physical exercise OR physical activity OR aerobics exercise OR anaerobic exercise)

**#2** TS=( vitamin D OR vitamin D2 OR vitamin D3 OR 25 hydroxyvitamin D OR cholecalciferol OR ergocalciferol OR calcitriol OR calcidiol OR calcifediol OR calciferol OR dihydroxycholecalciferol OR eldecalcitol OR hydroxycalciferol OR hydroxycolecalciferol OR alphacalcidol)

**#3** TS=(muscle strength OR hand strength OR handgrip OR mobility OR muscle function OR physical performance)

**#4** TS=(aged OR elderly)

**#5** TS=(intervention OR controlled trial OR randomized OR randomised OR random OR randomly OR placebo) and Preprint Citation Index

**#6** #1 AND #2 AND #3 AND #4 AND #5

**Embase**

Query(**‘exercise’**:ab,ti **OR ‘train’**:ab,ti **OR ‘endurance’**:ab,ti **OR ‘resistance’**:ab,ti **OR ‘physical exercise’**:ab,ti **OR ‘physical activity’**:ab,ti **OR ‘aerobics exercise’**:ab,ti **OR ‘anaerobic exercise’**:ab,ti) AND 'vitamin d':ab,ti OR 'vitamin d2':ab,ti OR 'vitamin d3':ab,ti OR '25hydroxyvitamin d':ab,ti OR 'cholecalciferol':ab,ti OR 'ergocalciferol':ab,ti OR 'calcitriol':ab,ti OR 'calcidiol':ab,ti OR 'calcifediol':ab,ti OR 'calciferol':ab,ti OR 'dihydroxycholecalciferol':ab,ti OR 'eldecalcitol':ab,ti OR 'hydroxycalciferol':ab,ti OR 'hydroxycolecalciferol':ab,ti OR 'alphacalcidol':ab,ti) AND ('muscle strength':ab,ti OR 'hand strength':ab,ti OR 'handgrip':ab,ti OR 'mobility':ab,ti OR 'muscle function':ab,ti OR 'physical performance':ab,ti) AND ('aged':ti,ab OR 'elderly':ti,ab) AND ('intervention':ab,ti OR 'controlled trial':ab,ti OR 'randomized':ab,ti OR 'randomised':ab,ti OR 'random':ab,ti OR 'randomly':ab,ti OR 'placebo':ab,ti)

**Cochrane**

**#1** (‘vitamin D’ OR ‘vitamin D2’ OR ‘vitamin D3’ OR ’25 hydroxyvitamin D’ OR ‘cholecalciferol’ OR ‘ergocalciferol’ OR ‘calcitriol’ OR ‘calcidiol’ OR ‘calcifediol’ OR ‘calciferol’ OR ‘dihydroxycholecalciferol’ OR ‘eldecalcitol’ OR ‘hydroxycalciferol’ OR ‘hydroxycolecalciferol’ OR ‘ alphacalcidol’)ti, ab

**#2** (exercise OR train OR endurance OR resistance OR physical exercise OR physical activity OR aerobics exercise OR anaerobic exercise)ti, ab

**#3** (‘muscle strength’ OR ‘hand strength’ OR ‘handgrip’ OR ‘mobility’ OR ‘muscle function’ OR ‘physical performance’)ti, ab

**#4** (‘aged’ OR ‘elderly’)ti, ab

**#5** (‘intervention’ OR ‘controlled trial’ OR ‘randomized’ OR ‘random’ OR‘randomly’ OR ‘placebo’)ti, ab

**#6** #1 AND #2 AND #3 AND #4 AND #5